

Amendments to the Claims:

This listing of claims will replace all prior versions, and listing, of claims in the application:

Listing of Claims:

1. (Currently amended) A high-efficiency phosphor from the class of the oxynitridosilicates having a cation M and the empirical formula $M_{(1-c)}Si_2O_2N_2:D_c$, where M contains Sr as a constituent and where D is a divalent doping comprising Eu-europium, wherein Sr alone or $Sr_{(1-x-y)}Ba_yCa_x$ with $x+y < 0.5$ is used for M, the oxynitridosilicate completely or predominantly comprising the high-temperature-stable modification HT and wherein the Eu fraction of M constitutes between 0.1 and 20 mol % of M so that c = 0.001 to 0.2, and wherein the level of W and Co impurities is less than 100 ppm with respect to precursor substances.
2. (Currently amended) The phosphor as claimed in claim 1, wherein the Eu fraction makes up between 0.1 and 20 mol% Sr represents the majority of M and a proportion of M is replaced by Ba and/or Ca.
3. (Currently amended) The phosphor as claimed in claim 1, wherein Sr represents the majority of M and a proportion of M, in particular up to 30 mol%, is replaced by Ba and/or Ca M=(Sr,Ba) and a proportion of M is replaced by Ca and/or zinc.
4. (Currently amended) The phosphor as claimed in claim 1, wherein Sr represents the majority of M and a proportion of M, in particular up to 30 mol%, is replaced by Li and/or La and/or Zn M is partially substituted by Li or La.

5. (Currently Amended) The phosphor as claimed in claim 1, wherein part of the group SiN in the oxynitridosilicate of formula $MSi_2O_2N_2$, ~~in particular up to 30 mol%~~, is replaced by the group AlO.

6. (Currently Amended) The phosphor as claimed in claim 1, wherein a proportion of Eu, ~~in particular up to 30 mol%~~, is replaced by Mn.

7. (Currently amended) The phosphor as claimed in claim 1, wherein the level of W and Co impurities is ~~as low as possible and is in particular in each case less than 100 ppm, preferably less than 50 ppm~~, with respect to the precursor substances.

8. (Currently Amended) The phosphor as claimed in claim 1, wherein more than 70%, ~~in particular more than 85%~~, of the oxynitridosilicate consists of the HT modification.

9. (Currently Amended) The phosphor as claimed in claim 1, wherein the oxynitridosilicate ~~predominantly~~ comprises the HT modification, and ~~in that~~ the proportion of foreign phases amounts to less than 15%.

10. (Previously presented) The phosphor as claimed in claim 1, wherein the full width at half maximum (FWHM) of the emission from the phosphor under photon excitation which originates from a range with peak emission between 50 and 480 nm is less than 90 nm.

11. (Currently amended) The phosphor as claimed in claim 1, wherein in its XRD spectrum, the level of foreign phases is minimized in accordance with the rule that with the XRD diffraction angle 2Θ in the range from 25 to 32°, the intensity of all the foreign phase peaks is less than $1/3$, ~~preferably less than 1/4, particularly preferably less than 1/5,~~ of the intensity of the main peak characterizing the HT modification at approximately 31.8°.

12. (Currently Amended) The phosphor as claimed in claim 1, wherein in its XRD spectrum the proportion of the LT phase is minimized in accordance with the rule that the characterizing peak of the LT modification in the XRD spectrum at approximately 28.2° has an intensity of less than 1:1, ~~preferably less than 1:2,~~ compared to the peak with the highest intensity from the group of three reflections of the HT modification which lie in the XRD spectrum at 25 to 27°.

13. (Currently Amended) A light source having a primary radiation source which emits radiation in the short-wave region of the optical spectral region in the wavelength range from 50 to 480 nm, this radiation being completely or partially converted into secondary radiation of a longer wavelength, ~~in particular in the visible spectral region,~~ by means of at least a first phosphor as claimed in claim 1.

14. (Previously presented) The light source as claimed in claim 13, wherein the primary radiation source used is a light-emitting diode based on InGaN.

15. (Previously presented) The light source as claimed in claim 13, wherein some of the primary radiation is converted into radiation of a longer wavelength by means of a further,

second phosphor, with the first phosphor and the second phosphor being selected and mixed in a suitable way to generate white light.

16. (Currently amended) The light source as claimed in claim [[13]] 15, wherein some of the primary radiation is converted into radiation of a longer wavelength by means of a third phosphor, this third phosphor emitting in the red spectral region, ~~in particular with a peak in the range from 580 to 670 nm.~~

17. (Currently Amended) A process for producing a high-efficiency phosphor from the class of the oxynitridosilicates having a cation M and the empirical formula $M_{(1-c)}Si_2O_2N_2:D_c$, where M contains Sr as a constituent and where D is a divalent doping comprising Eu, wherein Sr alone or $Sr_{(1-x-y)}Ba_yCa_x$ with $x+y < 0.5$ is used for M, the oxynitridosilicate completely or predominantly comprising the high-temperature-stable modification HT and wherein an Eu fraction of M constitutes between 0.1 and 20 mol % of M so that $c = 0.001$ to 0.2, and wherein the level of W and Co impurities is less than 100 ppm with respect to precursor substances ~~the high efficiency phosphor as claimed in claim 1~~, comprising the steps of:

- a) providing the precursor substances starting products SiO_2 , Si_3N_4 , remainder MCO_3 , as well as [[a]] an Eu precursor, in a substantially stoichiometric ratio and mixing the products; and
- b) annealing the mixture at approximately 1300 to 1600°C, ~~preferably 1450 to 1580°C.~~

18. (Currently amended) The process as claimed in claim 17, wherein the precursor substances starting products have a high purity with respect to W and Co of less than 50 100 ppm.

19. (Currently Amended) The process as claimed in claim 17, wherein the precursor substances starting products have a high reactivity of at least 6 m²/g BET surface area.

20. (Previously presented) The process as claimed in claim 17, wherein the stoichiometric batch of all the components is accurately maintained to within at least 10%.

21. (New) The phosphor as claimed in claim 6, wherein up to 30 mol % of Eu is replaced by Mn.

22. (New) The phosphor as claimed in claim 5, wherein up to 30 mol % of the group SiN is replaced by the group AlO.

23. (New) The light source as claimed in claim 16, wherein the third phosphor emitting in the red spectral region has a peak in the range from 580 to 670 nm.

24. (New) The phosphor as claimed in claim 2, wherein up to 30 mol % of M is replaced by Ba and/or Ca.

25. (New) The phosphor as claimed in claim 3, wherein up to 30 mol % of M is replaced by Ca and/or zinc.

26. (New) The phosphor as claimed in claim 4, wherein M is partially substituted by Li or La up to 20 mol%.